

DISTRIBUTED ENERGY RESOURCES

Weekly Summary of Events

www.eren.doe.gov/der

February 2, 2001

What's News With DER?

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DOE News

The **National Rural Cooperative Electric Association-Cooperative Research Network** (NRECA-CRN) conducted a Fuel Cell Seminar January 29-31 to initiate their fuel cell demonstration and evaluation program. NRECA-CRN is initiating a program to field test fuel cells from various manufacturers to evaluate them for the specific needs of rural electric applications. The purpose of the workshop was to introduce the CRN members to fuel cells as a potential product for meeting some of a rural electric utility's special requirements. As part of a 30% cost-shared NREL/DOE subcontract, Evaluation of the Field Performance of Fuel Cells, NRECA will document interconnection approaches and issues for any grid-connected systems, and report on any permitting, power quality, grid support, and market issues for all deployments. CRN will also report aggregated information about the cooperatives' (co-op) experience with fuel cells, including the rationale for choice of fuel cell type, site selection, and overall performance. In addition, NRECA-CRN is working with the Department of Defense, which will purchase and test a copy of each selected fuel cell.

Eight electric co-ops plan to participate in the CRN Residential Fuel Cell Demonstration Program, and each will purchase a fuel cell for evaluation. Others will participate as associates and observers. They are forming an Owner's Group to provide a forum for Co-op-to-Co-op experience, assessment, and discussion. There are over 1,000 electric Co-ops in 46 states, and together they comprise 10% of the power supply, and 45% of the distribution lines and cover 75% of the land mass. The Co-ops have 13 million service connections and 30 million customers, of which 60% are residential and 35% are commercial/industrial.

Gary Burch, from the Office of DER, attended a Distributed Generation Conference, co-sponsored by **ABB Power** and **ASCO Power Technologies**, in Denver on January 24-25, 2001. The DG market is growing rapidly and is estimated to reach 25-50 GW by 2010, and the conference focused on the latest information on business and technical prospects for accessing this market. Speakers addressed the economics of DG, evolving regulatory policies, market projections, interconnection challenges, and pricing issues. Conference attendees debated the strengths and weaknesses of different DG technologies and addressed economic and financing issues, as well as siting and permitting considerations. One

of the most provocative presentations was given by Lee Willis, VP with ABB Power, in a talk entitled "DG Smoke and Mirrors -- How Much is Real and How Much is Hype?"

Abbas Akhil, Sandia National Laboratories, and Bob Lasseter, University of Wisconsin, gave a presentation on January 18 to DOE's Office of DER on the MicroGrid concept they are pioneering under the DER Integration research area of the **Transmission Reliability Program**.

Philip Overholt gave a presentation on "Recent Power Outages and Reliability Initiatives" in a panel session on "Grid Reliability Management in a Restructured Industry" at the **IEEE Power Engineering Society Winter Meeting** in Columbus, Ohio, held January 29-February 1. The meeting also included several presentations on Transmission Reliability Program-sponsored research activities, including "DER MicroGrids" (Bob Lasseter, University of Wisconsin); "Customer Adoption Modeling for MicroGrids" (Chris Marnay, Lawrence Berkeley National Laboratory); "An R&D Agenda for Load as a Resource"; "Grid Reliability Management Tools" (Joe Eto, Lawrence Berkeley National Laboratory); "Transmission Congestion" (Fernando Alvarado, University of Wisconsin) and "Market Design Issues" (Shmuel Oren, UC Berkeley).

On January 22, Debbie Haught, from the Office of DER, gave a presentation on DOE's gas turbine programs and the use of advanced materials at the **25th Annual Conference on Composites, Materials and Structures** at Port Canaveral, Florida. The Conference is organized by representatives from the Army, Air Force, Defense Advanced Research Projects Agency (DARPA), DOE, Department of Commerce and NASA. The conference provides a forum for information relating to technology development for advanced materials (ceramics, metal, and carbon matrix composites).

A meeting of the International Electrotechnical Commission (IEC) Joint Coordinating Group (JCG) for Decentralized Renewable Energy Systems (DRES), chaired by R. DeBlasio, was held at NREL on January 29-31, 2001. The JCG was formed in March 2000, with the U.S. selected to chair the JCG to coordinate the work of member Technical Committee's (TC's) including TC82 (PV), TC88 (Wind), TC105 (Fuel Cells), and TC21 (Batteries) in developing IEC Standards in accordance with the IEC PAS (Publicly Available Specification) 62111 for decentralized energy

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systems, with France (Alain Schmitt) serving as project leader. Participants included representatives from Australia, Denmark, Japan, France, Germany, U.K., Canada, and the United States. The meeting was sponsored by the DOE Distributed Power Program and included tours of the NREL PV and Wind test facilities.

The coordinating group meeting activities included establishing the management scheme for developing and coordinating the standards development projects along with liaisons (JCG member representatives) with member TC's. Major progress at the meeting included establishing a frame work to develop a series of IEC standards for decentralized renewable energy systems for System Selection; System Design; Technical Specifications; Batteries and Converters; Integrated Systems; Grid Interconnection; Safety Rules; Acceptance, Operation; Maintenance and Renewal; and Energy Management. At future meetings standards development work specific to the member TC's scope will be identified and submitted for development by the JCG to the appropriate TC. Development areas not covered by specific TC's will be addressed by the JCG. Areas such as hybrid and systems integration will be addressed by the JCG. A major accomplishment during the meeting was the development of a draft introduction (as part of a series of IEC standards) as Committee Draft (CD) for review at the next planned meeting of the JCG in Paris, France, on July 9-11, 2001.

Industry News

The Association of California Water Agencies (ACWA) has signed an agreement with Harza Energy LLC, an energy consulting firm, to secure up to 2,000 microturbine unit orders from Capstone Turbine Corp. over the next two years. The deal is valued at up to \$60 million and could be Capstone's biggest microturbine order to date. ACWA's pumping stations use up to 7 percent of California's electricity and supply water to 90 percent of the state's farms and cities. For more information call, Keith Field, Capstone Turbine Corp. at (818) 734-5300.

PUC News

The Public Utility Commission (PUC) of Texas has approved pre-certification standards for distributed generation that will allow Texas electric customers to generate their own electricity. PUC-approved, nationally recognized testing laboratories will designate specific models as safe for interconnection with the Texas power distribution grid. Consumers may use a variety of generators, including microturbines, fuel cells, and renewable energy systems.

The generators may be connected to the utility without exporting power, or they may interconnect for the purpose of selling electricity, but they are not *required* to connect to the power grid. The standards allow each customer to interconnect up to 10 MW of distributed generation capacity; thus, they enact a portion of Senate Bill 7 in the electric restructuring legislation of 1999. For more information, contact Terry Hadley, PUC of Texas, at (512) 936-7135.

Feature of the Week

"Green Energy Parks" Initiative Providing \$1.6 Million for 70 Clean Energy Projects

The **U.S. Department of Energy (DOE)** and the **Department of the Interior's National Park Service (NPS)** have committed a combined \$1.6 million in funding for 70 new clean energy projects at national parks across the country under the **Green Energy Parks** program. A joint DOE and NPS initiative, Green Energy Parks provides energy efficient and renewable energy technologies and alternative fuels for the National Park System.

More than 25 of the 70 projects involve solar power. **Anacostia Park** in Southeast Washington, D.C. has received funding to install solar powered lighting for its Urban Tree House, an outdoor environmental education center. Other sample projects include:

- Badlands National Park, SD:* Install solar lighting along trails and parking areas
- Cape Lookout National Seashore, NC:* Photovoltaic installation; solar thermal project
- Hopewell Furnace National Historic Site, PA:* Install solar fans throughout park; purchase solar power generator; purchase and install solar sensor lights; install solar lighting in storage sheds
- Joshua Tree National Park, CA:* Install off-grid photovoltaic energy system
- Lake Mead National Recreation Area, NV:* Install entrance station photovoltaics; install solar collectors at two entrance stations; install solar photovoltaic comfort stations
- Mojave National Preserve, CA:* Install solar water pumping for campground well
- Petrified Forest National Park, AZ:* Install wind and solar vault toilet
- Sleeping Bear Dunes National Lakeshore, MI:* Install photovoltaic system on island
- Whiskeytown National Recreation Area, CA:* Convert visitor center to solar power; install solar parking lights

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In previous years, DOE and NPS invested \$1.5 million in 60 projects that provided clean energy and alternative fuels to 20 national parks. Educational displays that accompanied these energy projects explain to visitors how smart energy management saves energy and money while reducing pollution at home, at work, and in transportation choices.

Sources:

DOE's Federal Energy Management Program's (FEMP) Green Energy Parks website
<http://www.eren.doe.gov/femp/techassist/greenparks.html>

CALENDAR OF EVENTS

Date	Event	Location	Other Information
FEBRUARY 2001			
8-9	Congestion Management Conference	Denver, CO	www.euci.com ; 303-770-8800
8	NREL Brown Bag Series: Representation of Renewable Energy in Models	Washington, DC	www.nrel.gov/events.html
8	Distributed Energy Workshop for Federal Facility Managers	San Jose, CA	Gail Norby 303-384-7407; www.eren.doe.gov/femp/techassist/der_resources.html
12-14	CRN Technology Roadmap	Atlanta, GA	Steven P. Lindenberg, 703-907-5842
12-13	Power Outages: Harbinger for Things to Come?	Washington, DC	Nadine Harris 212-967-0095 x 238
20-22	Micro Power: Capitalizing on Distributed Energy Resource Strategies for Competitive and Reliable Power	San Francisco, CA	Bob Dixon is giving a talk entitled, "Distributed Energy Resources: What's New at the U.S. Department of Energy."
19-22	4th Industrial Energy Efficiency Symposium	Washington, DC	Sponsored by OIT; OPT will have a booth there; www.oitexpo4.com
22	Steel-Utility Workshop	Washington, DC	Peter Salmon-Cox; 202-586-2380
MARCH 2001			
8	NREL Brown Bag Series: Renewable Energy and Real Options Analysis	Washington, DC	www.nrel.gov/events.html
20-24	Distributed Generation Conference	San Diego, CA	www.powerin.org
21-23	5th Annual Distributed Generation and On-site Power Conference	New Orleans, LA	Pat Hoffman to give keynote address; www.dist-gen.com
22-24	Building Energy Conference	Boston, MA	Jonathon Tauer 413-774-6051, ext. 20
APRIL 2001			
2-3	Business Communications Company's 1 st Fuel Cell Conference	San Antonio, TX	EERE representative to speak; www.buscom.com
23-25	Intertech's Fifth International Conference on Distributed Power	Washington, D.C.	Hugh Olmstead; olmstead@intertechusa.com ; 207-281-9606

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MAY 2001			
1-3	Industrial Energy Technology Conference	Houston, TX	jim@esl.tamu.edu
9-10	Energy Management Conference	San Diego, CA	Sponsored by FEMP; www.aeecenter.org
30-31	Fuel Cells Codes & Standards Summit V	College Park, MD	ronald.fiskum@ee.doe.gov
JUNE 2001			
3-6	FEMP Energy 2001 Conference	Kansas City, MO	www.energy2001.ee.doe.gov/
3-7	WindPower 2001 Conference	Washington, DC	www.awea.org; laura_keelan@awea.org
11-13	International Symposium on Distributed Generation: Power System and Market Aspects	Stockholm, Sweden	http://www.ekc.kth.se/ees/workshop/DG.htm
JULY 2001			
10-12	Gas Storage Workshop	Kingston, Ontario	David Quinn; quinn-d@rmc.ca
AUGUST 2001			
29-Sep 3	IEEC Integrated Energy Efficiency Congress	Cleveland, OH	Sponsored in part by FEMP; www.aeecenter.org
OCTOBER 2001			
24-26	World Energy Engineering Congress	Atlanta, GA	www.agcc.org